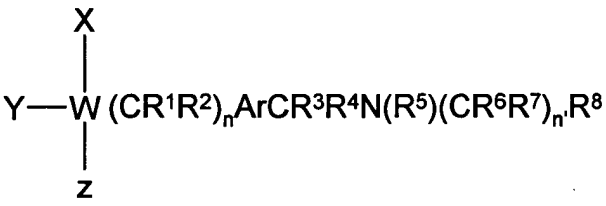
Abstract

This invention relates to a novel class of heterocyclic compounds that bind chemokine receptors, inhibiting the binding of their natural ligands thereby. These compounds result in protective effects against infection by HIV through binding to chemokine receptors, including CXCR4 and CCR5, thus inhibiting the subsequent binding by these chemokines. The present invention provides a compound of Formula I



(I)

wherein, W is a nitrogen atom and Y is absent or, W is a carbon atom and Y=H;

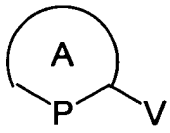
R^1 to R^7 may be the same or different and are independently selected from hydrogen or straight, branched or cyclic C_{1-6} alkyl;

R^8 is a substituted heterocyclic group or a substituted aromatic group

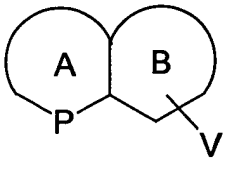
Ar is an aromatic or heteroaromatic ring each optionally substituted at single or multiple, non-linking positions with electron-donating or withdrawing groups;

n and n' are independently, 0-2;

X is a group of the formula:



or



Wherein, Ring A is an optionally substituted, saturated or unsaturated 5 or 6-membered ring, and P is an optionally substituted carbon atom, an optionally substituted nitrogen atom, sulfur or oxygen atom. Ring B is an optionally substituted 5 to 7-membered ring. Ring A and Ring B in the above formula can be connected to the group

W from any position via the group V, wherein V is a chemical bond, a $(CH_2)_{n''}$ group (where n''= 0-2) or a C=O group. Z is, (1) a hydrogen atom, (2) an optionally substituted C_{1-6} alkyl group, (3) a C_{0-6} alkyl group substituted with an optionally substituted aromatic or heterocyclic group, (4) an optionally substituted C_{0-6} alkylamino or C_{3-7} cycloalkylamino group, (5) an optionally substituted carbonyl group or sulfonyl. These compounds further include any pharmaceutically acceptable acid addition salts and metal complexes thereof and any stereoisomeric forms and mixtures of stereoisomeric forms thereof.